

REMARKS

Claims 1-59 are currently pending in this case. Claims 1, 9, 18 26, 35, 43, and 52 are independent. Claims 1-10, 13-27, 30-44 and 47-59 remain rejected under 35 U.S.C. 103(a) as being unpatentable over G.M. Bierman "Using XML as an Object Interchange Format". In the current amendment, claims 1, 9, 10, 11, 12, 18, 26, 27, 28, 29, 35, 43, 44, 45, 46 and 52 have been amended. Applicants note with appreciation the Examiner's indication of allowable subject matter in claims 11, 12, 28, 29, 45 and 46, which were originally objected to for depending from a rejected base claim. In view of this rejection, claims 11, 12, 28, 29, 45 and 46 have been re-written in independent form. Upon entry of the current amendment, claims 1-59 will be presently pending in this application, of which claims 1, 9, 18, 26, 35, 43, and 52 are independent. Applicants submit that pending claims 1-59 are in condition for allowance.

The following comments address all stated grounds of rejection. The Applicants urge the Examiner to pass the claims to allowance in view of the remarks set forth below.

Claim Amendments

Claims 1, 9, 10, 18, 26, 27, 35, 43, 44 and 52 have been amended to clarify and more fully appreciate the Applicants' claimed invention. In regards to pending independent claims 1, 9, 18, 26, 35 and 43, an additional limiting "sharing" element has been introduced to the now amended independent claims. Support for the amended claims can be found throughout the pending specification as well as the presently pending dependent claims. For example, on page 7, line 20 to page 8, line 8 the translation of at least one structured document is recited. Said amendments to the claims introduce no new matter. Applicants further submit that the presently pending claims are in condition for allowance. Claims 11, 12, 28, 29, 45 and 46, which were

deemed allowable but for their reliance on rejected independent claims, have been re-written in independent form. Applicants respectfully submit that these claims amendments introduce no new matter and are fully supported by the specification.

Claim Rejections Under 35 U.S.C. §103

I. Claims Rejected Under 35 U.S.C. §103 As Being Unpatentable Over Bierman

Summary of Claimed Invention

The present invention is directed towards managing objects in a database that stores structured documents representing objects. Applications implementing objects in different programming languages may store objects to or retrieve objects from the database. The instances of the objects may be implemented in a variety of programming languages, such as, but not limited to, Java, C, C++, and Fortran. These instances of objects are translated into a structured document compatible with the database. The structured document, such as an XML document, provides a representation of the instance of the object.

In maintaining objects in the structured document database, the claimed invention requests to store an instance of an object to the database, and translates said instance of the object into a structured document. The structured document represents the instance of the object and the attributes and attributes values for the class of the object. The content of the structured document representing the object is stored in the database. In accessing objects in the database, the claimed invention requests to access an instance of an object from the database storing structured documents representing objects. The instance of the object is obtained from the database and a structured document is generated to represent the object including attributes and

attribute values of the class of the object. The structured document is returned in response to the request. After receiving the structured document, an object implemented in any programming language is generated to embody the object represented by the structured document, including attributes and attribute values of the class of the object.

The claimed invention provides for maintaining objects implemented in different programming languages from different applications in an object database that stores structured documents representing the objects. This allows an object database to support multiple applications and multiple programming languages by storing objects in a structured document that represent the objects of the different programming languages. In this manner, applications using different programming language can share objects stored in the database.

Summary of Bierman

Bierman is an article that describes using XML as an Object Interchange Format (OIF) in conjunction with the standards of the Object Data Management Group (ODMG). Bierman is focused on proposing an alternative language and new XML document type of an Object Interchange Format Markup Language, OIFML, based upon XML. According to the ODMG standards, OIF is a specification language used to dump and load the current state of an ODMG-compliant object data management system (ODMS). For example, OIF can provide a file format for loading and unloading data from an ODMS. Bierman describes the details of the specification language of OIFML with respect to the structure and definition of objects and object attributes in an OIFML file.

Amended Independent Claims 1, 18, 35 Patentably Distinguished Over Bierman

Applicants respectfully submit that Amended claims 1,18 and 35 now patentable distinguish themselves over the cited art to Bierman. As Amended independent claims 1, 18, and 35 are directed to a method, system and program respectively Applicants submit the following arguments in support of the allowability of claims 1,18 and 35. These amended independent claims now recite the *maintaining of a database of objects accessible by a plurality of applications* including the steps of providing at least one structured document which represents the instance of the object including attributes and attribute values defined for a class and then adding this structured document into a database. This database may further store multiple structured documents representing multiple objects, all of which *are shared with a second application.*

Applicants respectfully submit that the cited art to Bierman fails teach or suggest each element of the present invention. Applicants submit that Bierman simply describes the encoding of an ODMG-objects into an XML based markup language. Such a summation is clearly detailed at page 12 of Bierman. This markup language focuses on the dumping and loading of the current state of an ODMG-compliant ODMS.

In contrast with the claimed invention, Bierman is not concerned with a request to store an instance of an object implemented in a first programming language into a database. Furthermore Bierman fails to teach or suggest the providing of a stored instance of an object into a structured document representing the instance of the object, wherein the structured document includes attributes and attribute values defined for a class. Additionally, Bierman fails to teach

or suggest the adding of the content of the structured document into a database such that this information is eventually *shared with a second application*. Instead, Bierman discusses the details of the specification of the OIFML format, including the basis structure, object definitions and physical clustering. Applicants submit that the concept of OIFML physical clustering applies to the locating of an object in close proximity to another object as controlled by an XML attribute proximity definition. Physical clustering such as this is illustrated at page 3 of Bierman.

In view of the above, Applicants submit that Bierman does not teach or suggest the maintaining of a database of objects accessible by a plurality of applications wherein the storage of an instance of an object implemented in a first programming language is requested. Furthermore Applicants submit that the providing of an instance of an object into a structured document, wherein the content of the structured document is added to a database, is not taught or suggested by Bierman. Applicants additionally state that the *sharing* of the structured document within a databases by a second application is neither taught nor suggested by Bierman.

For at least the aforementioned reasons, Applicants respectfully submit that the Bierman reference fails to render the present application obvious. Therefore, Applicants submit that amended claims 1, 18 and 35 are patentable and in condition for allowance. Claims 2-8 depend on and incorporate the patentable subject matter of independent claim 1, as amended. Claims 19-25 depend on and incorporate the patentable subject matter of independent claim 18, as amended. Claim 36-42 depend on and incorporate the patentable subject matter of independent claim 35, as amended. As such, claims 2-8, 19-25, and 36-42 are patentable and in condition for

allowance. Accordingly, Applicants request the Examiner to withdraw the rejection of claims 1-8, 18-25, and 35-42 under 35 U.S.C. §103.

Amended Independent Claims 9, 26, and 43 Patentably Distinguished over Bierman

Amended independent claims 9, 26, and 43 are directed towards a method, system and program, respectively. In view of this, Applicants submit the following arguments to overcome the Examiner's objections to the method, system and program claims currently rejected. These independent claims recite accessing a database of objects by a plurality of applications herein a first application of said plurality requests to obtain in a programming language an instance of at least one object from a database that stores multiple structured documents. Additionally, an instance of at least one object is translated into a structured document, wherein the structured document includes a representation of the attribute and attribute values in the object. Furthermore, the structured document is provided, such that the structures document is shared among a plurality of applications.

Applicants respectfully that Bierman does not teach or suggest each element of these pending claims as Bierman merely describes an XML markup language for a proposed OIF format that focuses on dumping and loading the current state of an ODMG-compliant ODMS into a file. Furthermore, Bierman fails to teach or suggest the accessibility of a database that is *shared* by a plurality of applications, but rather recites the encoding of ODMG objects in a modified XML language. Therefore, Applicants respectfully submit that each element of the presently amended claims are neither taught nor recited by the cited art. In view of this, Applicants request that the Examiner pass claims 9,26 and 43 to allowance. Claims 10-17

depend on and incorporate the patentable subject matter of independent claim 9, as amended.

Claims 27-34 depend on and incorporate the patentable subject matter of independent claim 26, as amended. Claims 44-51 depend on and incorporate the patentable subject matter of independent claim 43, as amended. As such, claims 10-17, 27-34, and 44-51 are patentable and in condition for allowance. Accordingly, Applicants request the Examiner to withdraw the rejection of claims 9-17, 26-34, and 44-51 under 35 U.S.C. §103.

Amended Independent Claim 52 Patentably Distinguished over Fong

Amended independent claim 52 is directed towards a computer readable medium claim including a computer database of objects accessibly by a plurality of applications. The computer database of objects stores multiple structured documents representing multiple objects and comprises at least one structured document representing an instance of an object including attributes and attribute values defined for a class. These structured documents may be accessed by a plurality of applications associated with the database. The instance of the object is implemented in a programming language.

Applicants respectfully submit that the Bierman reference does not disclose, teach or suggest a database capable of sharing information among a plurality of applications capable of receiving a request to store the instance of an object implemented in a programming language to the database, and to storing content of the structured document representing the instance of the object into the database. As discussed above, Bierman solely recites an XML markup language for dumping and loading the current state of an ODMG-compliant ODMS. Thus, Applicants submit that the Bierman reference focuses on the formalities of the OIFML language, thereby

failing to teach or suggest the a database accessibly by a plurality of applications, wherein the database may receive a request to store the instance of the object implemented in a programming language to the database, and to store content of the structured document representing the instance of the object into the database. As Bierman fails to teach or suggest each element of the present application, Applicants respectfully submit that amended claim 52 is patentable and in condition for allowance. Claims 53-59 depend on and incorporate the patentable subject matter of independent claim 52, as amended. As such, claims 53-59 are patentable and in condition for allowance. Accordingly, Applicants request the Examiner to withdraw the rejection of claims 52-59 under 35 U.S.C. §103.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this statement. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. SMQ-114 from which the undersigned is authorized to draw.

Dated: July 19,2005

Respectfully submitted,

By


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